

## CLAIMS

What is claimed is:

1           1. A method for caching web page on a wireless communication device  
2 comprising:  
3           receiving web page content over a wireless link;  
4           compressing a portion of the web page content in response to a request to  
5 cache; and  
6           decompressing a compressed portion of the web page content in response  
7 to a request to retrieve cache.

1           2. The method as claimed in claim 1 wherein the compressing comprises  
2 invoking one of a plurality of compression accelerators to compress the portion  
3 the web page content based on a data type of the portion, and wherein the  
4 decompressing comprises invoking one of a plurality of decompression  
5 accelerators to decompress the compressed portion of the web page content  
6 based on a data type of the compressed portion.

1           3. The method as claimed in claim 2 further comprises:  
2           invoking a first of the compression accelerators for the portions of the  
3 web page content of a first data type;  
4           invoking a second of the compression accelerators for the portions of the  
5 web page content of a second data type;  
6           invoking a first of the decompression accelerators for the compressed  
7 portions of the web page content of the first data type; and  
8           invoking a second of the decompression accelerators for the compressed  
9 portions of the web page content of the second data type.

1           4. The method as claimed in claim 1, further comprising as part of a  
2 caching operation:

3           transferring the portions of the web page content to be cached to a  
4           compression engine input buffer; and  
5           transferring, subsequent to compression, the compressed portions of the  
6           web page content from a compression engine output buffer to the cache  
7           memory;  
8           and as part of cache retrieval operation:  
9           retrieving the compressed portions of the web page content from a cache  
10          memory;  
11          transferring the compressed portions of the web page content to a  
12          decompression engine input buffer; and  
13          retrieving decompressed portions of the web page content from a  
14          decompression engine output buffer.

1           5. A system for caching a web page comprising:  
2           a compression engine compressing portions of web page content  
3           responsive to a request to cache the web page, the compression engine  
4           comprising a plurality of compression accelerators wherein at least one of the  
5           compression accelerators is invoked to compress one of the portions based on a  
6           data type of the portion; and  
7           a decompression engine decompressing compressed portions of the web  
8           page content from a cache memory, the decompression engine comprising a  
9           plurality of decompression accelerators wherein at least one of the  
10          decompression accelerators is invoked to decompress one of the compressed  
11          portions based on a data type of the compressed portion.

1           6. The system as claimed in claim 5 wherein:  
2           the compression engine invokes a first of the compression accelerators  
3           for portions of the web page content of a first data type and invokes a second of  
4           the compression accelerators for portions of the web page content of a second  
5           data type, and

6 the decompression engine invokes a first of the decompression  
7 accelerators for the compressed portions of the web page content of the first data  
8 type and invokes a second of the compression accelerators for the compressed  
9 portions of the web page of the second data type.

1 7. The system as claimed in claim 6 wherein:  
2 the compression engine comprises:  
3 a compression engine controller to invoke one of the compression  
4 accelerators based on the data type;  
5 a compression engine input buffer to store the content prior to  
6 compression by the compression accelerators; and  
7 a compression engine output buffer to store compressed content received  
8 from the compression accelerators, and  
9 the decompression engine comprises:  
10 a decompression engine controller to invoke one of the decompression  
11 accelerators based on the data type;  
12 a decompression engine input buffer to store the compressed portions of  
13 the content prior to decompression by the decompression accelerators; and  
14 a decompression engine output buffer to store decompressed portions of  
15 the content subsequent to decompression.

1 8. The system as claimed in claim 7 further comprising:  
2 a host processor; and  
3 a cache memory,  
4 wherein as part of a caching operation, the host processor transfers the  
5 portions of the web page content to be cached to the compression engine input  
6 buffer, and subsequent to compression, transfers the compressed portions of the  
7 web page content from the compression engine output buffer to the cache  
8 memory, and  
9 wherein as part of cache retrieval operation, the host processor retrieves  
10 the compressed portions of the web page content from cache memory, transfers

11 the compressed portions of the web page content to the decompression engine  
12 input buffer, and retrieves decompressed portions of the web page content from  
13 the decompression engine output buffer.

1 9. A compression engine comprising:  
2 a plurality of compression accelerators; and  
3 a controller identifying a data type for portions of content of a web page  
4 to be cached, and invoking one of the compression accelerators of the plurality  
5 based on the data type.

1 10. The compression engine as claimed in claim 9 wherein the content  
2 of the web page comprises a plurality of data types, and wherein the controller  
3 selects one of the compression accelerators for each data type.

1 11. The compression engine as claimed in claim 9 wherein each  
2 compression accelerator of the plurality is configured to implement one of a  
3 plurality of predetermined compression algorithms.

1 12. The compression engine as claimed in claim 9 further comprising:  
2 an input buffer to store the content prior to compression by the  
3 compression accelerators; and  
4 an output buffer storing compressed content received from the  
5 compression accelerators.

1 13. The compression engine as claimed in claim 9 wherein the content  
2 of the web page comprises a plurality of data types, each data type having a data  
3 type tag associated therewith, and wherein the controller reads the tag and  
4 selects one of the compression accelerators for each data type, and wherein:  
5 a first of the compression accelerators is configured to implement in  
6 hardware a first compression algorithm for a first of the data types; and

7           a second of the compression accelerators is configured to implement in  
8 hardware a second compression algorithm for a second of the data types,  
9           wherein the first and second data types are distinct, and the first and  
10          second compression algorithms are distinct.

1           14. The compression engine as claimed in claim 13 wherein the first  
2   compression algorithm is a Lempel-Ziv 77 (LZ77) compression algorithm, and  
3   the first data type comprises portable network graphics (PNG) data.

1           15. The compression engine as claimed in claim 13 further comprising a  
2   third compression engine configured to hardware implement a third compression  
3   algorithm for third data types of the group consisting of either joint photographic  
4   experts group (JPEG) or moving pictures experts group (MPEG) data.

1           16. The compression engine as claimed in claim 14 wherein the second  
2   compression algorithm is a LZW compression algorithm, and the second data  
3   type comprises graphic interface format (GIF) data.

1            17. The compression engine as claimed in claim 9 wherein the controller  
2        refrains from invoking one of the compression accelerators for portions of the  
3        content received in compressed form.

1        18. A decompression engine comprising:  
2        a plurality of decompression accelerators; and  
3        a controller to identify a data type for compressed portions of content of  
4        a web page to be retrieved, and to invoke one of the decompression accelerators  
5        of the plurality based on the data type.

1           19. The decompression engine as claimed in claim 18 wherein the  
2       compressed portions of content of the web page comprises a plurality of data  
3       types, each data type having a data type tag associated therewith, and wherein

4 the controller reads the tag and selects one of the decompression accelerators for  
5 each data type.

1 20. The decompression engine as claimed in claim 18 wherein each  
2 decompression accelerator of the plurality is configured to implement one of a  
3 plurality of predetermined decompression algorithms.

1 21. The decompression engine as claimed in claim 18 further  
2 comprising:  
3 an input buffer to store the compressed portions of the content prior to  
4 decompression by the decompression accelerators; and  
5 an output buffer to store decompressed portions of the content  
6 subsequent to decompression.

1 22. The decompression engine as claimed in claim 18 wherein the  
2 compressed portions of content of the web page comprises a plurality of data  
3 types, each data type having a data type tag associated therewith, and wherein  
4 the controller reads the tag and selects one of the decompression accelerators for  
5 each data type, and wherein:  
6 a first of the decompression accelerators is configured to hardware  
7 implement a first decompression algorithm for a first of the data types; and  
8 a second of the decompression accelerators is configured to hardware  
9 implement a second decompression algorithm for a second of the data types,  
10 wherein the first and second data types are distinct, and the first and  
11 second decompression algorithms are distinct.

1 23. The decompression engine as claimed in claim 22 wherein the first  
2 decompression algorithm is a Lempel-Ziv 77 (LZ77) decompression algorithm,  
3 and the first data type comprises portable network graphics (PNG) data.

1           24. The decompression engine as claimed in claim 23 wherein the  
2       second decompression algorithm is a LZW decompression algorithm, and the  
3       second data type comprises graphic interface format (GIF) data.

1           25. The decompression engine as claimed in claim 22 further comprising  
2       a third decompression engine configured to hardware implement a third  
3       decompression algorithm for third data types of the group consisting of either  
4       joint photographic experts group (JPEG) or moving pictures experts group  
5       (MPEG) data.